CLAIMS

1. A semiconductor device comprising:

an electrode formed of a flat plate portion at a bottom thereof and a cylindrical portion which extends up continuously from the flat plate portion and whose one side is open, wherein a rough-surface grain diameter of an outer surface of said electrode is formed so as to be larger than a rough-surface grain diameter of an inner surface thereof.

2. The semiconductor device according to claim 1, wherein a conductor film is formed along the inner surface of said electrode.

3. The semiconductor device according to claim 1, wherein the inner side of said cylindrical portion is buried with a conductive film.

4. A semiconductor device comprising:

an electrode formed of a cylindrical portion and a conductive film buried in the inner side of said cylindrical portion, wherein a rough-surface grain diameter of an outer surface of said cylindrical portion is formed so as to be larger than a rough-surface grain diameter of an inner surface thereof.

5. A method of manufacturing a semiconductor device, comprising the steps of:

forming an opening in an interlayer insulating film disposed on a substrate;

forming an amorphous silicon film in a concave form along an inner surface of said opening;

forming silicon growth nuclei on the surface of said

amorphous silicon film;

heat-treating said amorphous silicon film to migrate silicon and thereby polycrystallize said silicon film;

removing said polycrystallized silicon film on said interlayer insulating film; and

removing said interlayer insulating film and forming a cylindrical surface-roughened electrode.

6. The method of manufacturing a semiconductor device according to claim 5, further including a step for forming a conductor film in a concave fashion along an inner surface of said polycrystallized silicon film following said migration step.

7. The method of manufacturing a semiconductor device according to claim 5, further including the steps of:

forming a second amorphous silicon film in a concave form along an inner surface of said polycrystallized silicon film; and

heat-treating the second amorphous silicon film to migrate silicon and thereby polycrystallize said silicon film following said migration step.

8. The method of manufacturing a semiconductor device according to claim 5, further including a step for embedding a conductor inside said polycrystallized silicon film.

9. The method according to claim 8, further including a step of removing the bottom of said amorphous silicon film following said amorphous silicon film forming step.

10. The method according to claim 5, wherein after said migration step, the polycrystallized silicon film is processed by

silicon etching chemicals.